

1053-11-181

Xander Faber* (xander@math.mcgill.ca), McGill University, Department of Mathematics and Statistics, 805 Sherbrooke St. West, Montreal, Quebec H3A 2K6, Canada. *Prime Factors of Dynamical Sequences.*

Let $\phi(t) \in \mathbb{Q}(t)$ be a rational function of degree at least 2. For a given rational number x_0 , define $x_{n+1} = \phi(x_n)$ for each $n \geq 0$. If this sequence is not eventually periodic, then $x_{n+1} - x_n$ has a primitive prime factor for all sufficiently large n . This result provides a new proof of the infinitude of primes for each rational function ϕ of degree at least 2.

I will present the above result, along with some interesting refinements. I will also give a geometric description that suggests a question about dynamics in higher dimensions. This is joint work with Andrew Granville. (Received September 02, 2009)